

CLAIMS

1. A microorganism separation device, comprising:

a sample solution reservoir that stores a sample solution containing microorganisms therein;

5 sample solution supply means for supplying the sample solution stored within the sample solution reservoir to a first flow path;

a microorganism sensor that is capable of detecting a monadelphous microorganism in the sample solution that passes 10 through the first flow path;

sample solution separating means for stopping to supply the sample solution to the first flow path and discharging the detected microorganism together with the sample solution from a termination side of the first flow path on the basis of a 15 detection result of the microorganism by the microorganism sensor; and

an acceptor that receives the sample solution that is discharged from the termination side of the first flow path.

2. The microorganism separation device according to claim 1, 20 wherein the sample solution separating means can be controlled so that the sample solution that is discharged from the termination side of the first flow path includes one microorganism.

3. The microorganism separation device according to claim 1 25 or 2, wherein the termination of the first flow path is coupled

with the middle of a second flow path, a carrier solution for carrying the sample solution that is discharged from the termination side of the first flow path is made capable of circulating, and the acceptor is disposed on a termination side 5 of the second flow path.

4. The microorganism separation device according to any one of claims 1 to 3, wherein a filter is disposed in the sample solution supply means.

5. The microorganism separation device according to any one 10 of claims 1 to 4, wherein the acceptor comprises a plurality of acceptors, and the positional relations between a sample solution discharge portion at the termination of the first flow path or the second flow path and the respective acceptors are relatively movable.

15 6. The microorganism separation device according to claim 3 or 4, wherein a downstream side of the second flow path is divided into a plurality of diverging pipes, and the acceptors are disposed downstream of the respective diverging pipes.

7. A microorganism separation device, comprising:

20 sample solution supply means for injecting a sample solution that contains a microorganism therein into a first flow path;

a first outlet that discharges excess sample solution and bubbles;

25 carrier solution supply means for injecting the carrier

solution into a second flow path; and

a second outlet that discharges a carrier solution together with the microorganism,

wherein the first flow path and the second flow path are
5 connected to each other through an orifice, and a pair of electrodes that are disposed in each of the first flow path and the second flow path are capable of detecting passing of the microorganism through the orifice.

8. The microorganism separation device according to claim 7,
10 wherein an electrode that is disposed in the first flow path and an electrode that is disposed in the second flow path constituting the microorganism sensor are on a normal line that passes through the center of the orifice.

9. The microorganism separation device according to claim 7,
15 wherein at least one electrode of an electrode that is disposed in the first flow path and an electrode that is disposed in the second flow path constituting the microorganism sensor is made up of a plurality of faces, and a normal line that passes through the respective faces passes through the orifice.

20 10. The microorganism separation device according to claim 7,
wherein at least one electrode of an electrode that is disposed in the first flow path and an electrode that is disposed in the second flow path constituting the microorganism sensor exists on a sphere centered on the center of the orifice.

25 11. The microorganism separation device according to any one

of claims 1 to 8, wherein a sensor that measures a pressure or a flow rate is disposed in the first flow path.

12. The microorganism separation device according to any one of claims 1 to 9, wherein a power supply that applies a power 5 to the sensor is AC.